

## NOAA In Your State

# California

**NOAA** is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.

The following is a summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory: Starting with highlights, then by [congressional districts and cities or towns](#), [coastal programs](#), and then [statewide programs](#).

### Highlights of NOAA in California

<a href="#">Cordell Bank National Marine Sanctuary</a>	Point Reyes Station	CA-2
<a href="#">San Francisco Bay National Estuarine Research Reserve</a>	San Francisco, San Rafael, Suisun	CA-2,3
<a href="#">Greater Farallones National Marine Sanctuary</a>	Bodega Bay, Pt. Reyes, San Francisco	CA-2,12,13,14
<a href="#">Russian River Watershed Habitat Focus Area</a>	Santa Rosa	CA-5
<a href="#">Monterey Bay National Marine Sanctuary</a>	Monterey	CA-20
<a href="#">Channel Islands National Marine Sanctuary</a>	Santa Barbara and Ventura	CA-24,26

[NOAA Ship Reuben Lasker](#) San Diego CA-51

[La Jolla Shores Drive Laboratory](#) La Jolla CA-52

The state of California also has two Cooperative Institutes, six Weather Forecasting Offices, two Regional Offices, three Labs and Field Offices, ten Science on a Sphere® exhibitions, four National Marine Sanctuaries, three National Estuarine Research Reserves, and one Habitat Focus Area.

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### Weather Forecast Offices

Eureka	CA-2
Sacramento	CA-7
San Francisco	CA-20
San Joaquin Valley/Hanford	CA-21
Los Angeles	CA-26
San Diego	CA-52

[National Weather Service \(NWS\) Weather Forecast Offices \(WFO\)](#) are staffed 24/7/365 and provide weather, water, and climate forecasts and warnings to residents of California. There are 122 [WFOs nationwide](#) of which six are in California. Highly trained forecasters issue warnings and forecasts for weather events, including severe thunderstorms, tornadoes, hurricanes, winter storms, floods, and heat waves to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including wireless emergency alerts, social media, [weather.gov](#), and NOAA Weather Radio All Hazards. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs that strengthen working relationships with local partners in emergency management, government, the media and academic communities. Forecasters provide Impact-based Decision Support Services (IDSS), both remotely and on-site during critical emergencies such as wildfires, floods, chemical spills, and major recovery efforts. To gather data for forecasting and other purposes, NWS WFO staff monitor, maintain and use Automated Surface Observing Stations and Doppler Weather Radar. In addition to the WFOs, NWS operates specialized national prediction [centers](#) and regional headquarters throughout the U.S. for a total of 168 operational units. Over 85% of NWS' workforce is in the field. For current California weather, visit [www.weather.gov](#) and, on the national map, click on the relevant county or district.

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### Science On a Sphere®

Point Reyes Station	CA-2
Modesto	CA-10
San Francisco	CA-12
San Jose	CA-13
Berkeley	CA-13

Sylmar CA-29  
Lake Forest CA-45  
Santa Ana CA-46  
Long Beach CA-47  
Costa Mesa CA-48

[Science On a Sphere \(SOS\)](#) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain in a way that is simultaneously intuitive and captivating what are sometimes complex environmental processes. They are located at the Point Reyes National Seashore, Great Valley Museum and Modesto Junior College, The Climate Corporation in San Francisco, Tech Museum of Innovation in San Jose, Lawrence Hall of Science in Berkeley, Discovery Cube Los Angeles in Sylmar, Panasonic Avionics Corporation in Lake Forest, Discovery Science Center in Santa Ana, and Aquarium of the Pacific in Long Beach.

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#### **CA-1** **Arcata**

##### **National Ocean Service (NOS) - [Humboldt Bay PORTS®](#)**

A Physical Oceanographic Real-Time System (PORTS®) in Humboldt Bay, California operates through a partnership with the Humboldt Bay Harbor, Recreation and Conservation District and the Center for Operational Oceanographic Products (CO-OPS). The system in Humboldt Bay collects oceanographic data from two current meters, one water level station and one wave buoy.

#### **Redding**

##### **Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

#### **Yreka**

##### **National Marine Fisheries Service (NMFS) - [West Coast Region California Coastal Area Office](#)**

The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, Yreka, Santa Cruz, and Long Beach. The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams and seeking conservation partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities. We work with local communities and a diverse group of stakeholders to ensure that mutually beneficial conservation strategies are realized.

## CA-1, 2

### *Bodega Bay, Cazadero*

#### **Office of Oceanic and Atmospheric Research (OAR) - [Weather-Climate Connection Measurements](#)**

The Earth System Research Laboratory's Physical Sciences Laboratory supports long term measurements of coastal weather phenomena at three sites: Bodega Bay, Cazadero, and Chico. These sites measure key phenomena associated with winter weather, fog, fire weather, air quality, and a host of other applications at the interface of weather and climate. Observations from these sites are made available to the public on the internet and they have led to dozens of research publications in the peer-reviewed literature.

## CA-1, 3

### *Thermalito, Twitchell Island*

#### **Office of Oceanic and Atmospheric Research (OAR) - [MOA CA Department of Water Resources](#)**

The NOAA Physical Sciences Laboratory operates and maintains two atmospheric river observatories upwind of the Oroville Dam in California to provide observations of moisture transport through the San Francisco Bay area up into the north central valley where it rises over the Sierra Nevada and causes heavy precipitation. The data are used in research to advance NOAA predictive capabilities through the evaluation of key processes in forecast system models as well as to support nowcasting and real-time applications. The California Department of Water Resources requested that these observatories be installed in response to the Oroville Dam flood mitigation crisis in February 2017.

## CA-2

### *Arcata*

#### **National Marine Fisheries Service (NMFS) - [Northern California Pacific Coast Ocean Observing System Coordination Office](#)**

Located at the Humboldt State University Marine Laboratory, the Northern California Pacific Coast Ocean Observing System Coordination Office, part of the Southwest Fisheries Science Center's Fishery Ecology Division, is charged with leading and facilitating ocean observing activities and research on fisheries and oceanography off the North Coast of California, a historically understudied region of the California Current System. This collaborative effort between the Southwest Fisheries Science Center and Humboldt State University also provides opportunities for graduate student training and enhances educational programs directly linked to the NMFS mission.

#### **National Marine Fisheries Service (NMFS) - [West Coast Region California Coastal Area Office](#)**

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### *Bodega Bay*

#### **Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference

network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

### **Eureka**

**National Weather Service (NWS) - [Weather Forecast Office](#)**- See [Page 2](#) for details.

### **Point Reyes Station**

**National Ocean Service (NOS) - [Cordell Bank National Marine Sanctuary](#)**

Cordell Bank National Marine Sanctuary, established in 1989 and expanded to 1,286 square miles in 2015, protects and conserves an area of extraordinary ocean productivity and coastal upwelling off northern California. Cordell Bank National Marine Sanctuary works with the West Coast region and the national program, implementing ecosystem based management that considers coastal communities, maritime commerce, ocean habitat, water quality and a thriving community of resident and migratory fishes, invertebrates, marine mammals, seabirds and turtles. Sanctuary programs include a decades-long monitoring effort to track climate change and ecosystem health, cooperative research with local universities to understand critical ocean issues, education and outreach programs for teachers, schools and local communities to increase ocean awareness and stewardship, and resource protection efforts to educate and enforce sanctuary regulations. Seafloor surveys in 2018 examined multiple habitat types within the sanctuary, including continental shelf, slope, and Cordell Bank, which is covered with corals and sponges. Other surveys study the open water habitat, which includes important feeding grounds for resident and migratory seabirds and marine mammals. . Cordell Bank National Marine Sanctuary relies on input from a citizen advisory council representing sanctuary constituent groups who provide advice on sanctuary activities and management actions. By addressing current management issues and anticipating future challenges, we strive to maintain a healthy marine environment for this and future generations. The sanctuary office is co-located with the offices for Point Reyes National Seashore in Olema, CA.

**NOAA Office of Education — [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Point Reyes National Seashore's Visitor Center (Marin), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

**Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#)**- See [Page 2](#) for details.

### **Trinidad**

**Office of Oceanic and Atmospheric Research (OAR) - [Monitoring the Atmosphere Aloft- Halocarbon Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL/GML researchers. These air samples are delivered to ESRL/GML in Boulder, Colorado for measurements of CO<sub>2</sub>, CH<sub>4</sub>, and other greenhouse gasses. This data will improve understanding and models of the global carbon cycle. Sampling is conducted bi-weekly. Some air samples from the small aircraft program are also analyzed for halocarbon gases that can destroy the stratospheric ozone layer. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

**Office of Oceanic and Atmospheric Research (OAR) - [Halocarbon Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone layer. Weekly samples are collected in high-pressure flasks at fixed locations. The air sample flasks are delivered to ESRL/GML, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

**Office of Oceanic and Atmospheric Research (OAR) - [Ozone Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML), in collaboration with the California Air Resources Board (CARB), conducts long-term monitoring of stratospheric ozone with balloons. Stratospheric ozone measurements provide data relevant to: surface pollution events, lower and upper atmosphere mixing dynamics, boundary layer stability, ozone trend studies (vertical distribution), and temperature and pressure profiles. ESRL/GML also conducts long-term monitoring of ozone at the surface, through cooperative relationships with local partners. Near ground level ozone is currently monitored using ultraviolet absorption photometers at eight sites that are generally representative of background conditions. These sites, four of which have records exceeding 25 years in length, provide information on possible long-term changes in tropospheric ozone near the surface and support air quality research.

**[Ukiah \(Lake Mendocino\)](#)**

**Office of Oceanic and Atmospheric Research (OAR) – [Forecast Informed Reservoir Operations \(FIRO\)](#)**

The NOAA Physical Sciences Laboratory maintains seven soil moisture sites (sponsored by the Sonoma County Water Agency) in California's upper Russian River watershed in support of the Forecast Informed Reservoir Operations (FIRO) project. FIRO is a management strategy that uses data from watershed monitoring and modern weather and water forecasting to help water managers selectively retain or release water from reservoirs in a manner that reflects current and forecasted conditions.

**[CA-2, 3](#)**

**[San Francisco, San Rafael, Suisun](#)**

**National Ocean Service (NOS) - [San Francisco Bay National Estuarine Research Reserve](#)**

The National Estuarine Research Reserve System is a network of protected areas focused on long-term research, monitoring, stewardship, education, and training. NOAA's Office for Coastal Management provides funding and national guidance, and each site is managed on a daily basis by a lead state agency or university with input from local partners. . Designated in 2003, the San Francisco Bay research reserve is managed by a partnership between San Francisco State University, California State Parks, and the Solano Land Trust. The reserve's 3,710 acres are comprised of two of the most pristine wetlands in the San Francisco Bay estuary, spread across two sites: China Camp State Park and Rush Ranch Open Space Preserve in the Suisun Marsh.

**National Ocean Service (NOS) – [Margaret A. Davidson Graduate Fellowship](#)**

The Margaret A. Davidson Graduate Fellowship program funds graduate student research and professional development opportunities within the National Estuarine Research Reserve System. The program supports collaborative research addressing local management challenges that may influence future policy and management strategies. The Davidson Fellow at San Francisco Bay National Estuarine Research Reserve will focus their research on the effects of sea-level rise and biological invasions on salt marsh plant communities.



### CA-3

#### Walnut Grove

##### **Office of Oceanic and Atmospheric Research (OAR) - [Tall Tower Carbon Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates trace gas monitoring sites at tall television transmitter towers, and other towers, in eight states, including California. The sites were established to extend ESRL/GML's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide, are largest near the ground, so we utilize existing tall towers as platforms for in situ and flask sampling for atmospheric trace gases.

##### **Office of Oceanic and Atmospheric Research (OAR) - [Halocarbon Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone layer. Weekly samples are collected in high-pressure flasks at fixed locations. The air sample flasks are delivered to ESRL/GML, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

### CA-4

#### Yosemite Village

##### **Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 135 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### CA-5

#### Santa Rosa

##### **National Ocean Service (NOS), National Marine Fisheries Service (NMFS), Oceanographic and Atmospheric Research (OAR), and National Weather Service (NWS) - [Russian River Watershed Habitat Focus Area](#)**

The Russian River watershed was the first Habitat Focus Area selected under NOAA's Habitat Blueprint. As part of the Habitat Blueprint administered by the NOAA Fisheries Office of Habitat Conservation, NOAA has selected ten Habitat Focus Areas (HFAs), place-based locations across the country to maximize the effectiveness of habitat conservation. While each HFA focuses on individual habitat conservation goals outlined in their Implementation Plan, the overarching goal is to demonstrate results in a focused area in a short time period. In the Russian River Habitat Focus Area, multiple offices within NOAA are joining an already active community of partners to make significant progress on three major objectives - rebuilding endangered coho and threatened steelhead stocks to sustainable levels through habitat protection and restoration; improving frost, rainfall, and river forecasts in the Russian River watershed through improved data collection and modeling; and increasing community resilience to flooding damage through improved planning and water management strategies.

##### **National Marine Fisheries Service (NMFS) - [West Coast Region California Coastal Area Office](#)**

The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams and seeking conservation

partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities.

**NOAA Commissioned Officer Corps (NOAA Corps) - [GIS and Operations Coordinator](#)**

The NOAA Commissioned Officer Corps stations an officer with the California Coastal Office Operations and Policy Branch of the National Marine Fisheries Service (NMFS) West Coast Region in support of NMFS operations requiring Geographic Information Systems (GIS). This officer manages the operations of GIS to support the salmon recovery efforts in the Santa Rosa Office, coordinates with Federal, State, and local partners on GIS requirements for recovery of endangered species act protected species, and responds to other miscellaneous GIS requests for the office. In addition, they serve as both the Vessel Operations Coordinator for seven river research vessels located in both Santa Rosa and Long Beach, and as a NOAA Scientific/Working Diver on the Coastal Office dive team.

**[Sacramento](#)**

**National Marine Fisheries Service (NMFS) - [West Coast Region](#) California Central Valley Area Office**

The California Central Valley Area Office is part of the NMFS West Coast Region and is located in the heart of California's Central Valley, only a few blocks from the State Capitol. Our responsibilities focus on the Sacramento and San Joaquin River Basins and Sacramento-San Joaquin Delta. We work in these river basins to protect species listed under the Endangered Species Act by evaluating the impact of proposed federal actions, developing recovery plans, seeking conservation partnerships with local governments and landowners, and ensuring safe fish passage past federal and some private dams.

**NOAA Commissioned Officer Corps (NOAA Corps) - [Special Assistant, NMFS California Central Valley Office \(CCVO\)](#)**

The NOAA Commissioned Officer Corps stations an officer with the National Marine Fisheries Service California Central Valley Office in support of its mission of conservation and regulatory management. The officer primarily serves the office through providing administrative management and technical assistance to the branches within the office, including performing Section 7 biological consultations under the endangered species act. This officer leverages their scientific and administrative expertise to fill multiple roles simultaneously, including coordinating inter-agency working groups focused on recovery plans and regulatory/management documents as well as participating directly in field work as needed.

**[CA-2, 5](#)**

**[Santa Rosa, Hopland, Middletown, Cazadero](#)**

**Office of Oceanic and Atmospheric Research (OAR) - [NOAA Hydrometeorology Testbed](#)**

In conjunction with the Weather Program Office, OAR's Physical Sciences Laboratory operates and maintains four precipitation profiling radars to evaluate precipitation processes over complex terrain.

**[CA-2,12, 13,14](#)**

**[Bodega Bay, Pt. Reyes, San Francisco](#)**

**National Ocean Service (NOS) - [Greater Farallones National Marine Sanctuary](#)**

NOAA's Greater Farallones National Marine Sanctuary protects 3,295 square miles off the North-central California coast, from Point Arena in Mendocino County, south to off Half Moon Bay in San Mateo County. It also has administrative jurisdiction over the northern sector of Monterey Bay National Marine Sanctuary. Greater Farallones manages one of the most biologically productive and diverse regions in the world, consisting of open ocean, tidal flat, rocky intertidal, estuarine wetland, subtidal reef, and sandy beach habitats. It supports 25 threatened and endangered species, 36 marine mammals, white sharks, and the largest seabird rookery in the lower 48 states. Greater Farallones carries out conservation, research, education, and stewardship programs to protect and manage these waters for resiliency, informed



by long-term scientific investigations such as the Applied California Current Ecosystem Studies and Deep Sea Corals research (in conjunction with Cordell Bank National Marine Sanctuary); and its Beach Watch coastal monitoring program. Through formal and informal education and outreach programs it reaches over 30,000 people each year, and through partner exhibits including the California Academy of Sciences and Pt. Reyes National Seashore it reaches 4.3 million annually. A council representing commerce, conservation, fisheries, science, recreation, tourism, and other sectors advises sanctuary management. Established in 1981, Greater Farallones National Marine Sanctuary maintains an office, classroom and visitor center in the Golden Gate National Recreation Area's Presidio of San Francisco.

**National Ocean Service (NOS) - [Greater Farallones National Marine Sanctuary Ocean Climate Center](#)**

NOAA's Greater Farallones National Marine Sanctuary Ocean Climate Center addresses the effects of climate change on the sanctuary and surrounding marine region through partnerships, research collaborations, outreach and education, and policy actions; and acts as an ocean and climate change communication center for the Bay Area. It has implemented several climate adaptation plans with community partners, and assists other national marine sanctuaries across the program in planning for climate change.

**CA-7**

**[Sacramento](#)**

**National Weather Service (NWS) - [California-Nevada River Forecast Center](#)**

Co-located with the NWS Weather Forecast Office in Sacramento, the NWS California-Nevada River Forecast Center (CNRFC) performs continuous river basin modeling and provides hydrologic forecast and guidance products for rivers and streams and has responsibility for all river basins in California (except for the Colorado River drainage in the south), the Klamath River in southern Oregon, the Quinn River in southeast Oregon, and all river basins in Nevada (except for tributaries to the Snake River in the north, tributaries to the Colorado River in the southeast, and tributaries to the Great Salt Lake and Sevier Lake in the far east portion). These products include forecasts of river stage and flow, probabilistic river forecasts, reservoir inflow forecasts, gridded precipitation estimates and forecasts, spring flood outlooks, and flash flood and headwater guidance. Some of the RFCs in the western and central U.S. also provide water supply forecasts. RFCs work closely with local, state and federal water management agencies, including the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and U.S. Geological Survey, to provide water and flood information for critical decisions (aka Impact-based Decision-Support Services or IDSS).

**National Weather Service (NWS) - [Weather Forecast Office](#)**- See [Page 2](#) for details.

**CA-7-13**

**[San Francisco Bay Area](#)**

**National Ocean Service (NOS) - [San Francisco Bay PORTS®](#)**

A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the local maritime community in greater San Francisco Bay at which real-time data are quality-controlled and disseminated to local users for safe and efficient navigation. Real-time data are available for water levels from six stations, meteorological data from fourteen stations, current data from four stations, surface wave data from one station and visibility sensors from three locations.

**CA-8**

**[Stovepipe Wells](#)**

**Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

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#### CA-10

##### Modesto

**Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#) -** See [Page 2](#) for details.

#### **NOAA Office of Education — [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Modesto Junior College's Great Valley Museum Science Community Center (Stanislaus), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

#### CA-12

##### San Francisco

**Office of Oceanic and Atmospheric Research (OAR) - [Tall Tower Carbon Measurements](#)**

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**Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#) -** See [Page 2](#) for details.

#### CA-12, 17

##### San Francisco, Santa Clara, Sonoma County

**Office of Oceanic and Atmospheric Research (OAR) - [Advanced Quantitative Precipitation Information System](#)**

NOAA and the Sonoma County Water Agency have signed a MOU in support of the Advanced Quantitative Precipitation Information (AQPI) System project — a four-year, regional multi-agency collaboration to improve monitoring and prediction of precipitation, hydrology, and coastal storm flooding in the San Francisco Bay region. The NOAA Physical Sciences Laboratory and Global Systems Laboratory officially began participation in AQPI in the late summer of 2017 along with partners from Colorado State University, USGS, and Scripps Institution of Oceanography. The project, funded by the California Department of Water Resources, includes installation of five radar systems, and high resolution modeling using a research version of NOAA's operational High Resolution Rapid Refresh (HRRR) to better predict storms and their impacts for a variety of water management practices. The first radar was installed in September 2017 in Santa Clara, CA. The project concludes in 2021 with the delivery of an operational precipitation–hydrologic information system informed by regional stakeholders. A second radar was installed in Santa Rosa in 2019.

#### CA-13

##### Fremont

**National Weather Service (NWS) - [Center Weather Service Unit](#)**

Housed in the Federal Aviation Administration's Oakland Air Traffic Control Center (ARTCC) in Fremont, the NWS Center Weather Service Unit (CWSU) staff provides aviation forecasts and other weather information to ARTCC personnel for their use in directing the safe, smooth flow of aviation traffic for most of northern California and western Nevada.

#### ***San Jose, Berkeley***

**Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#) - See [Page 2](#) for details.**

#### ***Oakland***

**NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the University of California at Berkeley's Lawrence Hall of Science (Alameda), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

**National Ocean Service (NOS) - OR&R Marine Debris Program (MDP)**

The NOAA Marine Debris Program (MDP) supports national and international efforts to research, prevent, and reduce the impacts of marine debris. The MDP California Regional Coordinator, based in Oakland, supports coordination efforts with regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences.

#### ***CA-15***

##### ***Livermore***

**Office of Oceanic and Atmospheric Research (OAR) - [Program for Climate Model Diagnosis and Intercomparison](#)**

The Geophysical Fluid Dynamics Laboratory (GFDL) is involved in the archiving of its climate model data at the Lawrence Livermore National Laboratory, located in Livermore, CA. Model data is archived for the purpose of intercomparison of climate model data obtained from other national and international climate modeling institutions around the world.

#### ***CA-16***

##### ***Merced***

**Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

#### ***CA-20***

##### ***Monterey***

**National Ocean Service (NOS) - [Monterey Bay National Marine Sanctuary](#)**

Monterey Bay National Marine Sanctuary, at 6,094 square miles, is the largest national marine sanctuary on the U.S. mainland, extending along the coastline from north of San Francisco to the south through five coastal counties to the town of Cambria. A remarkable diversity of marine habitats found nowhere else in North America is within the boundaries of the sanctuary and includes rugged rocky shores, sandy beaches, lush kelp forests, and most significantly, some of the deepest submarine canyons and the only protected seamount found on the Pacific continental shelf. The nutrient-rich

currents traveling through the sanctuary allow for a diverse assemblage of marine life, including marine mammals, seabirds, shorebirds, turtles, numerous commercially-fished species and thousands of invertebrate species, some of which are listed as threatened or endangered status. Monterey Bay National Marine Sanctuary staff coordinate multiple programs that engage with coastal residents, marine science partners, and businesses as diverse as agriculture, commercial fishing and recreation and tourism. While the sanctuary's main office is located in Monterey, it operates additional offices and visitor centers in Santa Cruz and in San Simeon.

**National Ocean Service (NOS) - [National Marine Protected Areas Center](#)**

The mission of the National Marine Protected Areas Center is to facilitate the effective use of science, technology, training and information in the planning, management and evaluation of the nation's system of marine protected areas. The National Marine Protected Areas Center supports the nation's federal, state and territorial marine protected area (MPA) programs through capacity building, science, information, tools and outreach. MPAs include National Marine Sanctuaries, National Estuarine Research Reserves, National Parks, National Wildlife Refuges, and the state counterparts to these programs. The Center is co-located with the Office of National Marine Sanctuaries West Coast Regional Office in Monterey.

**NOAA Commissioned Officer Corps (NOAA Corps) - [Manager, Environmental Products](#)**

The NOAA Commissioned Officer Corps stations an officer within the Environmental Research Division of the Southwest Fisheries Science Center in support of the agency's mission of stewardship of living marine resources and the promotion of healthy ecosystems. The officer performs a variety of duties in concert with shifts in the Division's operations throughout the year. This includes sailing with the division on projects on NOAA Ships, field work incorporating UAS equipment, and managing logistical and data-analysis responsibilities when not in the field. Additionally, this officer maintains UAS equipment, extracts data from aerial photographs and acoustic sampling, and presents compiled information when required.

**NOAA Commissioned Officer Corps (NOAA Corps) - [Operations Officer, Office of National Marine Sanctuaries West Coast Region](#)**

The NOAA Commissioned Officer Corps stations an officer at the Office of National Marine Sanctuaries (NMS) West Coast Regional Office in support of multiple sanctuary offices' operations. This officer performs various duties related to the maintenance and operation of multiple NOAA small vessels, such as the 67' R/V Fulmar, as well as in an administrative capacity, such as helping to plan and execute the Office's budget. They are responsible for training new hires on the operation of the small vessels, operating the vessels themselves for up to 120 days of the year, in addition to performing various scientific and working dives as needed by the program. As an additional duty, this officer may be called upon to assist operations in the Channel Islands NMS and Olympic Coast NMS.

**[Santa Cruz](#)**

**National Marine Fisheries Service (NMFS) - [West Coast Region California Coastal Area Office](#)**

The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, Yreka, Santa Cruz, and Long Beach. The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams

and seeking conservation partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities. We work with local communities and a diverse group of stakeholders to ensure that mutually beneficial conservation strategies are realized.

**National Ocean Service (NOS) - [Monterey Bay National Marine Sanctuary - Sanctuary Exploration Center](#)**

The Sanctuary Exploration Center, the main visitor center for Monterey Bay National Marine Sanctuary and the largest NOAA-dedicated education facility on the west coast, is located just steps from the Santa Cruz beach boardwalk and provides state-of-the-art, interactive, interpretive exhibits regarding the sanctuary and its adjoining watersheds to approximately 75,000 visitors annually. The Sanctuary Exploration Center is a model for sustainable, environmentally sensitive design, construction and operation, meeting the U.S. Green Building Council's GOLD standards for Leadership in Energy and Environmental Design (LEED).

**National Ocean Service (NOS) - [Monterey Bay National Marine Sanctuary](#)**

The National Marine Fisheries Service Lab in Santa Cruz houses two Monterey Bay National Marine Sanctuary staff, an education specialist and a senior research scientist. This co-location facilitates collaboration between sanctuary and NMFS scientists.

**NOAA Commissioned Officer Corps (NOAA Corps) - [Operations Officer, Ecology Investigation](#)**

The NOAA Commissioned Officer Corps stations an officer with the Fisheries Ecology Division in support of the division's research on Pacific salmon and groundfish. The officer serves in various roles for the division, including as a member of the groundfish analysis team, Vessel Operations Coordinator for eleven vessels, and as a scientific diver. They participate in field operations with the lab, manage the shore-side support and logistics, and conduct some data analysis for the program. In addition, they perform various administrative duties, such as managing the training and proficiency requirements of the small boat operators, execute various safety programs in the division, and manage the maintenance and inspection of operational equipment.

**CA-19**

**[San Jose](#)**

**NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Tech Museum of Innovation (Santa Clara), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

**CA-20**

**[Santa Cruz](#)**

**National Marine Fisheries Service (NMFS) - [Fisheries Ecology Division](#)**

Located adjacent to the University of California - Santa Cruz, Long Marine Laboratory, the Fisheries Ecology Division of the Southwest Fisheries Science Center (SWFSC) conducts research on Pacific coast groundfish and Pacific Salmon. Results of this research are used by the Pacific Fishery Management Council to manage fisheries and by NMFS to develop recovery plans for threatened and endangered species. Fisheries Ecology Division scientists study causes of variability in abundance and health of fish populations, analyze ecological relations in marine communities, and study the

economics of exploiting and protecting natural resources. They also assess the status of stocks targeted by various fisheries and evaluate impacts of human activities on threatened or endangered species. The Santa Cruz laboratory also houses the Data Integration and Analysis Program of the SWFSC's Environmental Research Division. Program scientists maintain environmental and fisheries relevant databases and distribute environmental index products and time series databases to cooperating researchers world-wide. The Data Integration and Analysis program also hosts the west coast regional node for the NOAA CoastWatch program, which provides rapid dissemination of satellite observation data to governmental, academic, commercial and public users. The Santa Cruz laboratory engages in educational and public engagement partnerships with the Seymour Science Center at UC Santa Cruz and the Monterey Bay National Marine Sanctuary Exploration Center.

### **Monterey**

#### **National Marine Fisheries Service (NMFS) - [Environmental Research Division](#)**

The Climate and Ecosystem Program of the Southwest Fisheries Science Center's Environmental Research Division is located in Monterey, CA, to take advantage of its long association with the United States Navy's Fleet Numerical Meteorology and Oceanography Center. The research group was formed in 1969 to develop databases and to conduct research on fishery-related effects of environmental variability and climate change over a broad range of scientific, management, and operational concerns of the government and the fishing industry of the United States.

#### **NOAA Office of Education — [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Monterey Bay Aquarium (Monterey) as a member of the Coastal Ecosystem Learning Center (CELC) Network, which is a consortium of 25 aquariums and marine science education centers working together to engage the public in protecting coastal and marine ecosystems.

### **Carmel**

#### **National Marine Fisheries Service (NMFS) - [Granite Canyon Marine Laboratory](#)**

Located at Granite Canyon, eight miles south of Carmel, California, along the Big Sur coast, the Granite Canyon Marine Laboratory has been the site of NMFS' shore-based counts of southbound migrating gray whales since 1967. The University of California-Davis's Marine Pollution Studies Laboratory is also located at the site.

**National Weather Service (NWS) - [Weather Forecast Office](#)**-See [Page 2](#) for details.

### **Watsonville**

#### **National Ocean Service (NOS) - [Elkhorn Slough National Estuarine Research Reserve](#)**

The National Estuarine Research Reserve System is a network of protected areas focused on long-term research, monitoring, stewardship, education, and training. NOAA's Office for Coastal Management provides funding and national guidance, and each site is managed on a daily basis by a lead state agency or university with input from local partners. Elkhorn Slough National Estuarine Research Reserve was designated in 1979 and is located on the Central California coast halfway between Monterey and Santa Cruz. The reserve, managed on a daily basis by the California Department of Fish and Game and the Elkhorn Slough Foundation, contains 1,439 acres of wetland and upland habitat, rare and threatened marsh, mudflat, and estuarine habitats, all of which are important for several endangered species.

#### **National Ocean Service (NOS) – [Margaret A. Davidson Graduate Fellowship](#)**

The Margaret A. Davidson Graduate Fellowship program funds graduate student research and professional development opportunities within the National Estuarine Research Reserve System. The program supports collaborative research



addressing local management challenges that may influence future policy and management strategies. The Davidson Fellow at Elkhorn Slough National Estuarine Research Reserve will focus their research on the fate and transport of nutrients in salt marshes.

#### **CA-21**

##### **San Joaquin Valley/Hanford**

**National Weather Service (NWS) - [Weather Forecast Office](#)**- See [Page 2](#) for details.

##### **Hanford**

**Office of Oceanic and Atmospheric Research (OAR) - [Surface Radiation Measurement Network](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates surface-based radiation monitoring sites in seven states. ESRL/GML's Integrated Surface Irradiance Study (ISIS) monitoring network is based in the continental United States and is a collaboration with NOAA's SURFRAD Network.

**Office of Oceanic and Atmospheric Research (OAR) - [Total Column Ozone Measurements](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) makes measurements of the column amounts of ozone between the earth's surface and the top of the atmosphere at a number of locations around the United States, including Hanford, CA. The observations are obtained with ground-based spectrometers that measure the attenuation by ozone of ultraviolet light. These observations represent NOAA global stratospheric ozone network and are used to track recovery of stratospheric ozone layer in compliance with the USA Clean Air act of 1990. The integrated ozone amount is critical in determining the amount of ultraviolet radiation reaching the earth's surface. Excess ultraviolet radiation is responsible for human skin cancer and is also harmful to other biogenic organisms. Column ozone measurements monitor changes in the stratospheric ozone layer resulting from human-produced chlorine and bromine compounds that destroy ozone. With controls now in place on the manufacture and use of these ozone-destroying compounds, it will be important to monitor the ozone layer for the expected recovery and determine whether other factors such as long-term climate change are influencing this recovery.

#### **CA-24**

##### **San Simeon**

**National Ocean Service (NOS) - [Monterey Bay National Marine Sanctuary - Coastal Discovery Center](#)**

Monterey Bay National Marine Sanctuary's southernmost office is in San Simeon, California. The office is also home to the Coastal Discovery Center, a visitor center jointly operated with California State Parks, located at William Randolph Hearst Memorial Beach. The Coastal Discovery Center's primary function is to provide education and outreach to the general public and school groups about the natural and cultural resources of the sanctuary and coastal California, reaching approximately 20,000 visitors annually. One of the educational foci for the Coastal Discovery Center is the elephant seals which aggregate on nearby beaches offering probably the easiest viewing of these huge pinnipeds in the world.

#### **CA-24, 26**

##### **Santa Barbara and Ventura**

**National Ocean Service (NOS) - [Channel Islands National Marine Sanctuary](#)**

Often referred to as the "American Galapagos," the 1,470 square-mile Channel Islands National Marine Sanctuary, surrounding San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara islands, hosts 27 species of whales and dolphins, five species of seals and sea lions, and more than 60 species of seabirds. Rich cultural resources exist as well, such as prehistoric artifacts from early island residents, the remains of more than 100 historic shipwrecks, and living

maritime heritage values of contemporary indigenous Chumash people. Experience the sanctuary first-hand through commercial vessel excursions leaving from Santa Barbara, Ventura or Channel Islands harbors.

In Santa Barbara, visitors learn more about the sanctuary through exhibits at the Santa Barbara Maritime Museum, Santa Barbara Sea Center, and Outdoors Santa Barbara Visitor Center. In Ventura County, visitors can learn about the sanctuary, ocean safety and boating options at the Channel Islands Boating Center. The main office for Channel Islands sanctuary staff is located at the University of California, Santa Barbara, and the university plans to outfit the Center for Ocean Advancement of Science and Technology (COAST), co-located with the sanctuary office on campus. Two NOAA research vessels are homeported at Santa Barbara Harbor. Sanctuary programs address protecting sensitive resources, conducting marine science, community involvement and outreach, and numerous education programs. A 21-seat Sanctuary Advisory Council brings together a variety of marine stakeholders and agency partners, meeting publicly every two months to discuss current sanctuary issues and develop management advice that informs agency decision-making.

**NOAA Commissioned Officer Corps (NOAA Corps) - [Vessel Operations Coordinator, Channel Islands National Marine Sanctuary](#)**

The NOAA Commissioned Officer Corps stations an officer with the Channel Islands National Marine Sanctuary (NMS) office in support of NMS operations in the region. The officer is responsible for the safe operation, inspection compliance, life cycle costs, and material condition of the boats under their supervision, as well as for the planning and execution of both the vessel operations and the Channel Islands NMS budget. In addition, they serve as Operator in Charge, as a crew member, or as a dive team member in various operations on average one week per month. Other duties include coordinating with a variety of Federal and State agencies, as well as universities and NGOs to conduct joint projects on Channel Islands NMS vessels, as well as conducting training to ensure qualified use of NMS assets by all personnel.

**[Oxnard](#)**

**National Ocean Service (NOS) - [Channel Islands Boating Center](#)**

A consortium of agencies and boaters pursued and eventually developed the Channel Islands Boating Center at Channel Islands Harbor in Oxnard. This facility, funded by grants from the California Department of Boating and Waterways (now part of State Parks), and the NOAA Office of National Marine Sanctuaries, on land provided by the Harbor, educates visitors about boating safety and boating options at the Channel Islands and nearby mainland coastal waters. It is operated today by California State University, Channel Islands. Channel Islands National Marine Sanctuary maintains an education staff member in an office at the boating center to interact with the boating community, Ventura County residents, student groups, other agencies, and the university.

**[CA-24](#)**

**[San Luis Obispo, Santa Barbara Counties](#)**

**National Ocean Service (NOS) – [Proposed Chumash Heritage National Marine Sanctuary](#)**

The Northern Chumash Tribal Council and a large group of citizens have nominated Chumash Heritage National Marine Sanctuary. NOAA accepted that nomination into the inventory in October 2015. The proposal covers the coastline from Cambria south through San Luis Obispo County and northern Santa Barbara County to Gaviota Creek, and offshore a considerable distance. The proposal is designed to protect diverse ecological communities and habitats, numerous protected species, an upwelling center, an important ecological transition zone, and hundreds of shipwrecks, and to promote awareness of the Chumash culture. Thousands of supporters extend from tribal leaders, congressional members, elected officials at all levels of government in both counties, numerous state agencies, diverse users including recreational fishermen, scientists and recreational purveyors. Some opposition has been expressed by a much smaller group of other ocean users and several elected officials. Prevalent ocean users in this area include offshore oil and gas

development, commercial and recreational fishing, marine science, wildlife watching, harbor activities, as well as proposals for offshore wind development.

#### **CA-24**

##### **San Simeon**

##### **National Marine Fisheries Service (NMFS) - [Piedras Blancas Field Station](#)**

Since 1994, scientists from the Southwest Fisheries Science Center's Protected Resources Division have been monitoring the northbound migration of gray whale cows and calves from Piedras Blancas, a point of land just north of San Simeon, and just south of the Big Sur coast. The field site, once used as a lookout point to spot animals during the whaling era, is also home to the Piedras Blancas Light Station and is situated on Bureau of Land Management property. The site is ideal because the whales generally pass within 200 m of the point and often stop to nurse their young in the lee of the rocky point. The survey data has been used to assess variability in annual calf production and to investigate the relationship of this variability to environmental conditions in the Arctic where these whales feed.

##### **Santa Barbara**

##### **Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

##### **Vandenberg AFB**

##### **National Environmental Satellite, Data, and Information Service (NESDIS) - [Office of Satellite and Product Operations](#)**

Vandenberg Air Force Base is the site of many satellite launches for military and commercial organizations. Along with launches, it also houses a remotely controlled and monitored NOAA Search and Rescue Satellite Aided Tracking (SARSAT) reference beacon. . The remotely operated ground systems, referred to as Local User Terminals (LUTs) which receive signals, relayed through polar orbiting satellites, from ships, aircraft or individuals in distress were decommissioned in response to added MEOSAR ground stations presence in Florida, Hawaii, and New Mexico.

#### **CA-25**

##### **Palmdale**

##### **National Weather Service (NWS) - [Center Weather Service Unit](#)**

Housed in the Federal Aviation Administration's Los Angeles Air Traffic Control Center (ARTCC) in Palmdale, the NWS Center Weather Service (CWSU) staff provides aviation forecasts and other weather information to ARTCC personnel for their use in directing the safe, smooth flow of aviation traffic in Southern California and parts of Arizona, Nevada and Utah.

##### **Office of Oceanic and Atmospheric Research (OAR) - [Halocarbon Measurements](#)**

NOAA's Global Monitoring Laboratory is participating in the Dynamics and Chemistry of the Summertime Stratosphere. Airborne instruments will look at how atmospheric chemistry is transformed by various air pollutants transported to the lower stratosphere during the North American Monsoon. This project is sponsored by NASA and led by the Texas A&M University.

## CA-26

### Los Angeles Basin

National Weather Service (NWS) - [Weather Forecast Office](#)- See [Page 2](#) for details.

## CA-27

### Mt. Wilson

Office of Oceanic and Atmospheric Research (OAR) - [Tall Tower Carbon Measurements](#)

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates trace gas monitoring sites at tall television transmitter towers, and other towers, in eight states, including California. The sites were established to extend ESRL/GML's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide, are largest near the ground, so we utilize existing tall towers as platforms for in situ and flask sampling for atmospheric trace gases.

## CA-29

### Sylmar

Office of Oceanic and Atmospheric Research (OAR) - [Science on a Sphere](#)- See [Page 2](#) for details.

### NOAA Office of Education — Environmental Literacy Program

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Discovery Cube (Los Angeles), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

## CA-36, 37, 46

### Los Angeles and Long Beach

National Marine Fisheries Service (NMFS) - [West Coast Region](#) California Coastal Area Office

The California Coastal Area Office is part of the NMFS West Coast Region and includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams and seeking conservation partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities.

National Ocean Service (NOS) - [Los Angeles/ Long Beach PORTS®](#)

A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the local maritime community in the metropolitan Los Angeles/Long Beach area at which real-time data are quality-controlled and disseminated to local users for safe and efficient navigation. Real-time data are available for water levels from one station, meteorological data from ten stations, surface wave data from three stations, and bridge air gap data from two stations.

## CA-45

### Lake Forest

Office of Oceanic and Atmospheric Research (OAR) - [Science on a Sphere](#)- See [Page 2](#) for details.

## CA-46

### **Santa Ana**

**Office of Oceanic and Atmospheric Research (OAR) - [Science on a Sphere](#)**- See [Page 2](#) for details.

### **NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Discovery Cube (Orange), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

### **CA-47**

### **Long Beach**

**Office of Oceanic and Atmospheric Research (OAR) - [Science on a Sphere](#)**- See [Page 2](#) for details.

### **National Marine Fisheries Service (NMFS) - [Southwest Inspection Branch](#) and Los Angeles Lot Inspection Office**

NOAA's Seafood Inspection Program conducts a voluntary inspection program for fishery products on a fee-for-service basis. The office offers a wide range of services to the seafood industry (fishermen, wholesalers, processors, retailers, importers and exporters) including process and product inspection, product grading, lot inspection, laboratory analysis, and training. Export health certificates as required by most countries are issued for U.S. exporters. All edible foodstuffs, ranging from whole fish to formulated products, as well as fishmeal and animal feeds, are eligible for inspection and certification.

<http://www.westcoast.fisheries.noaa.gov/index.html>

### **National Marine Fisheries Service (NMFS) - [West Coast Region Long Beach Office](#)**

NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act. To achieve this mission and advance sound stewardship of these resources, we work closely with tribes, local, state and federal agencies, our stakeholders, and partners to find science-based solutions to complex ecological issues.

### **National Marine Fisheries Service (NMFS) – Regional Aquaculture Coordinator - West Coast Region - Long Beach Office**

The aquaculture coordinators lead regional efforts to foster sustainable aquaculture across the region. The West Coast Region/California has a vibrant commercial marine aquaculture industry supported by a world class research and technology sector. Regional priorities include shellfish, seaweed, and finfish farming, as well as restoration aquaculture. Aquaculture coordinators support regulatory efficiency, aquaculture outreach and education, and serve as liaisons with state and local agencies, tribes, non-government organizations, academia, and industry. These coordinators also work as part of NOAA's Aquaculture Program to foster sustainable U.S. marine aquaculture to increase production of seafood and support business and employment opportunities."

### **NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the

Aquarium of the Pacific (Los Angeles), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages. ELP also supports the Aquarium of the Pacific as a member of the Coastal Ecosystem Learning Center (CELC) Network, which is a consortium of 25 aquariums and marine science education centers working together to engage the public in protecting coastal and marine ecosystems.

#### **CA-48**

##### **Costa Mesa**

**Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#)**- See [Page 2](#) for details.

#### **NOAA Office of Education - [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Orange Coast College's Planetarium (Orange), which has a permanent exhibit featuring NOAA's Science On a Sphere (SOS) and is a member of NOAA's SOS Users Collaborative Network (SOS Network). The SOS Network connects over 150 science education institutions worldwide to the latest NOAA data as part of a focused effort to increase environmental literacy at all ages.

#### **CA-49, 52**

##### **La Jolla**

#### **National Ocean Service (NOS) - [California Spatial Reference Center](#)**

In a model partnership with NOAA, the California Spatial Reference Center (CSRC) serves as a way of providing a spatial referencing liaison between Federal and local authorities. The Center is a non-profit organization affiliated with the Scripps Institution of Oceanography of the University of California-San Diego. The mission of the Center is to provide the necessary geodetic services to ensure the availability of accurate, consistent, and timely spatial referencing data for California. In partnership with several other organizations, CSRC has developed a plan to establish and maintain a state-of-the-art network of GPS control stations necessary for a reliable spatial reference system in California.

#### **NOAA Commissioned Officer Corps (NOAA Corps) - [Southwest Fisheries Science Center Support](#)**

The NOAA Commissioned Officer Corps stations multiple officers within the various programs of the Southwest Fisheries Science Center (SWFSC) in support of their administrative and operational needs. These officers are responsible for a wide array of positions such as serving as the Center Chief of Staff, as Antarctic Logistics coordinator, as field station Camp Leader in Antarctica, as UAS Cetacean Photogrammetry Specialist, and as Advanced Survey Technology Officer. In these positions, officers perform duties including planning and managing budgets; coordinating with State, Federal, and industry partners to perform scientific research; maintain the equipment in use by the programs; participating in field expeditions; liaising with the USCG, US Navy, and UNOLS on regional issues and operations; and serving as vessel program coordinator for all National Marine Fisheries Service small boat activities in California.

#### **CA-50**

##### **Fallbrook**

#### **Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference



network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

## CA-51

### *Imperial Beach*

#### **National Ocean Service (NOS) - [Tijuana River National Estuarine Research Reserve](#)**

The National Estuarine Research Reserve System is a network of protected areas focused on long-term research, monitoring, stewardship, education, and training. NOAA's Office for Coastal Management provides funding and national guidance, and each site is managed on a daily basis by a lead state agency or university with input from local partners. The Tijuana River research reserve was designated in 1982 and is jointly managed by California State Parks, the U.S. Fish and Wildlife Service and the Southwest Wetlands Interpretive Association. The 2,293-acre site is located in Imperial Beach, Calif., 15 miles south of San Diego and immediately adjacent to Tijuana, Mexico. The reserve is a home to eight threatened and endangered species of plants and birds and is recognized as a 'wetland of international importance' by the Ramsar Convention.

#### **National Ocean Service (NOS) – [Margaret A. Davidson Graduate Fellowship](#)**

The Margaret A. Davidson Graduate Fellowship program funds graduate student research and professional development opportunities within the National Estuarine Research Reserve System. The program supports collaborative research addressing local management challenges that may influence future policy and management strategies. The Davidson Fellow at Tijuana River National Estuarine Research Reserve will focus their research on assessing ecosystem health through status and trends of contaminants.

### *San Diego*

#### **National Marine Fisheries Service (NMFS) - [San Diego Port Facility](#)**

The NOAA San Diego Port Facility provides storage for sea-going sampling equipment, berthing for the Southwest Fisheries Science Center's (SWFSC) small boat fleet and provides office space and parking for sea-going personnel and activities. The facility is located within the Port of San Diego's 10th Avenue Marine Terminal.

#### **Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Institute for Marine Ecosystems and Climate \(No Cost Extension\)](#)**

The Cooperative Institute for Marine Ecosystems and Climate (CIMEC) was established at the Scripps Institution of Oceanography at the University of California, San Diego. CIMEC serves as a mechanism to promote collaborative research between university scientists and those in NOAA. The mission of CIMEC is to develop and consolidate leading research and educational programs across its member institutions in support of NOAA's mission "to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social and environmental needs". CIMEC research is largely partnered with the NOAA Southwest Fisheries Science Center. Consortium members include California State University- Los Angeles, Humboldt State, University of California- Davis, University of California- Los Angeles, University of California, Santa Barbara, and University of California- Santa Cruz. CIMEC conducts research across four themes: (1) climate and coastal observations, analysis, and prediction; (2) climate research and impacts; (3) marine ecosystems; and (4) ecosystem based management.

#### **Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Institute for Marine, Earth, and Atmospheric Systems](#)**

The Cooperative Institute for Marine, Earth, and Atmospheric Systems (CIMEAS) was established at the Scripps Institution of Oceanography at the University of California, San Diego. CIMEAS serves as a mechanism to promote collaborative research between university scientists and those in NOAA. The mission of CIMEC is to develop and

consolidate leading research and educational programs across its member institutions in support of NOAA's mission "to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social and environmental needs". CIMEAS research is largely partnered with the NOAA Southwest Fisheries Science Center. Consortium members include California State University- Los Angeles, Farallon Institute, Humboldt State University, Moss Landing Marine Laboratory at San Jose State University, University of California- Davis, University of California- Los Angeles, University of California- Santa Barbara, and University of California- Santa Cruz. CIMEAS conducts research across four themes: (1) science to support ecosystem-based management of living marine resources; (2) research, development, and technology innovation for global ocean observations and monitoring; (3) coastal and oceanic observations, analysis, and prediction; and (4) weather, water and climate research.

**Office of Oceanic and Atmospheric Research (OAR) - [California-Nevada Climate Applications Program](#)**

The California-Nevada Climate Applications Program (CNAP) is a cooperative agreement between NOAA's Climate Program Office (CPO), Scripps Institution of Oceanography, and the Desert Research Institute. It is one of several Regional Integrated Sciences and Assessments (RISA) teams contributing to the development of knowledge, expertise, and abilities of decision-makers to plan and prepare for climate variability and change. CNAP has a long history of providing cutting edge climate science to stakeholders in the region. The program began with an emphasis on California issues in 1999 as the California Applications Program (CAP). In 2011 the team expanded its geographic scope to include Nevada and became CNAP. CNAP's core priority sectors include understanding effects of climate variation on water resources, natural resources and coastal resources, along with other linked systems including societal components. Since 2005, CNAP has worked closely with the California Energy Commission (CEC) and other State Agencies in taking a leading role in the first three California Climate Change Vulnerability and Adaptation Assessments, and is currently completing the Fourth California Climate Change Assessment. CNAP has also collaborated with California Department of Water Resources (DWR) in providing data, observations and interpretation to better anticipate how climate and associated weather events affect water resources and water hazards in the State. CNAP, working with California agencies including DWR, CEC and the California Ocean Protection Council, has contributed to a better understanding of climate impacts on the California coast, including the occurrence of coastal storms and two iterations of Sea Level Rise Guidance to State Agencies. Another focus of CNAP is working with fire agencies in California, Nevada and across the western U.S. to investigate effects of climate and weather on wildfire. With increased emphasis on Nevada climate issues, CNAP has worked with Great Basin tribes to understand barriers to climate data and helped develop a resilience plan with Washoe County. More recently CNAP is working with Southern Nevada Water Authority to better understand how climate variation drives changes in water demand in their Clark County service territory. CNAP is also working with the Bureau of Land Management (BLM), and local National Weather Service offices on climate related projects, and CNAP researchers recently teamed with the Science Climate Alliance – South Coast to develop a comprehensive study of the vulnerability of San Diego County ecosystems to climate influences. Core partners of CNAP include the Scripps Institution of Oceanography, the Desert Research Institute, and the Western Regional Climate Center.

**NOAA Office of Education — [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP funded the Ocean Discovery Institute (San Diego) to build the environmental literacy of children, youth, and adults so they are knowledgeable of the ways in which their community can become more resilient to extreme weather, climate change, and other environmental hazards, and become involved in achieving that resilience. The Ocean Discovery Institute uses NOAA science to build understanding of climate change and impacts on local hazards, human-nature interactions, and individual and community capacity for resilience through place-based education in the underserved community of City Heights, San Diego.

**Office of Marine and Aviation Operations (OMAO) - [NOAA Ship Reuben Lasker](#)**

NOAA's newest Fishery Survey Vessel , NOAA Ship *Reuben Lasker*, is homeported in San Diego within the Port of San Diego's 10th Avenue Marine Terminal, and is managed by the OMAO Marine Operations Center-Pacific in Newport, Oregon. The fifth of the Oscar Dyson class vessels, the *Lasker* primarily supports fish, marine mammals and turtle surveys off the U.S. West Coast and in the eastern tropical Pacific Ocean. The vessel supports NOAA's mission to protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management. NOAA Ship *Reuben Lasker* is operated under the direction of officers from the NOAA Commissioned Officer Corps in concert with NOAA civilian Wage Mariners. The NOAA Corps today provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. Officers operate ships, fly aircrafts, conduct diving operations, and serve in other NOAA staff positions. NOAA Wage Mariners perform the deck, engineering, steward, and survey tech functions aboard NOAA vessels, providing critical support to NOAA missions.

**CA-52**

**[La Jolla](#)**

**National Marine Fisheries Service (NMFS) - [La Jolla Shores Drive Laboratory](#)**

La Jolla is the headquarters for the Southwest Fisheries Science Center (SWFSC) and the location of the Director's Office, Information Technology Services, the Marine Mammal and Turtle Division, Antarctic Ecosystem Research Division and Fisheries Research Division, as well as the Operations and Management Division. Center scientists conduct marine biological, economic and oceanographic research, observations and monitoring of living marine resources and their environment throughout the Pacific Ocean and in the Southern Ocean around Antarctica. The La Jolla Laboratory Replacement Project (completed in 2013) is an award-winning, LEED Gold-certified facility located on the campus of Scripps Institution of Oceanography, University of California - San Diego. The facility is a focal point for ecosystem-based fisheries research, surveys and monitoring programs. In addition to 35 state-of-the-art laboratories, the new facility houses a unique, multi-story Ocean Technology Development Test Tank. The La Jolla Laboratory engages in educational partnerships and public engagement partnerships throughout the city, including the Ocean Discovery Institute.

**National Weather Service (NWS) - [Weather Forecast Office](#)**- See [Page 2](#) for details.

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**[Coastal](#)**

**National Marine Fisheries Service (NMFS) - [Deep-Sea Coral Research and Technology Program](#)**

NOAA's Deep Sea Coral Research and Technology Program is the only federal program dedicated to mapping, characterizing, and understanding deep-sea coral ecosystems, and sharing the information needed to conserve these habitats. The Program -- called for in the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act and administered by the Office of Habitat Conservation -- is working with other NOAA offices and external partners to conduct fieldwork to study the distribution, abundance, and diversity of deep sea corals and sponges. Since 2009, more than 42,500 square miles of seafloor have been mapped and surveyed for deep-sea coral habitats from Florida to Maine, in Alaska and the West Coast, and in Hawaii and the Marianas Trench. In FY 2021, research is being prioritized in Alaska, California, Oregon, and Washington.

**National Marine Fisheries Service (NMFS) - [Cooperation with States Program](#) and [Species Recovery Grants](#)**

Under the authority of section 6 of the Endangered Species Act, the Cooperation with States Program brings states, NMFS, and other partners together to recover threatened and endangered species. A total of 25 U.S. territories and coastal states, including California, currently participate in this program. Competitive grants are awarded to states through

the Species Recovery Grants to States Program to support management, monitoring, research and outreach efforts for species that spend all or a portion of their life cycle in state waters. The funded work is designed to prevent extinctions or reverse the decline of species, and restore ecosystems and their related socioeconomic benefits. The California Department of Fish and Wildlife has received multiple awards through this program, including grants to support projects focused on white abalone and the southern distinct population segment of green sturgeon.

**National Marine Fisheries Service (NMFS) - [National Marine Mammal Stranding Network](#) and [John H. Prescott Marine Mammal Rescue Assistance Grant Program](#)**

The National Marine Mammal Stranding Network and its trained professionals and volunteers respond to dead or live marine mammals in distress that are stranded, entangled, out of habitat or otherwise in peril. Our long-standing partnership with the Network provides valuable environmental intelligence, helping NOAA establish links among the health of marine mammals, coastal ecosystems, and coastal communities as well as develop effective conservation programs for marine mammal populations in the wild. There are 16 stranding network members in the state. NOAA Fisheries funds eligible members of the Stranding Network through the competitive John H. Prescott Marine Mammal Rescue Assistance Grant Program. In FY20, 43 grantees received a total of \$3.7Mil nationwide, with six awards totalling \$536,895 going to six recipients in California: California Academy of Sciences; Channel Islands Marine and Wildlife Institute; Northcoast Marine Mammal Center, National Marine Mammal Foundation, Regents of the University of California, Davis and the Regents of the University of California, Santa Cruz.

**National Marine Fisheries Service (NMFS) - [Pacific Coastal Salmon Recovery Fund](#)**

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in 2000 to reverse the declines of Pacific salmon and steelhead by advancing the protection, restoration, and conservation of Pacific salmon and their habitats. The Fund is essential to prevent the extinction of 28 salmon species protected under the Endangered Species Act and also plays a vital role in supporting the economies of local communities from California to Alaska, upholding Tribal Treaty fishing rights and subsistence fishing traditions, and restoring all salmon populations to productive and viable levels along the entire West Coast. Since 2000, approximately 14,571 projects have restored more than 1.15 million acres of salmon habitat, opening over 11,489 miles of streams to spawning fish, with \$1.55 billion in grants leveraging over \$1.78 billion in contributions. Several studies suggest that a \$1 million investment in watershed restoration creates between 13 and 32 jobs and between \$2.2 and \$3.4 million in economic activity. In California, there are 148 active projects.

**National Marine Fisheries Service (NMFS) - [Wetlands Recovery Project](#)**

NMFS West Coast Region has been an active participant in the Southern California Wetlands Recovery Project. The Wetlands Recovery Project is a broadly based partnership with 18 state and federal agencies working in concert with scientists, local governments, and environmental organizations, as well business leaders and educators to increase the pace and effectiveness of wetlands recovery efforts in southern California. To date, the Wetlands Recovery Project has spent more than \$528 million dollars, enhanced over 3,400 acres of wetland habitat, and protected over 7,900 acres of coastal wetlands and watersheds. Major projects include coastal bay and lagoon habitat restoration, increasing fish passage opportunities, stream restoration, and invasive species eradication and control.

**National Ocean Service (NOS) - [Office for Coastal Management](#)**

The NOAA Office for Coastal Management practices a partner-based, boots on the ground approach to coastal management. The organization currently has staff in the eight regions to provide assistance to local, state, and regional coastal resource management efforts and facilitate customer feedback and assessments. Assistance is provided to local, state, and regional coastal resource management efforts. The central West Coast staff office is located in Oakland, California, with additional staff based in Portland and Medford, Oregon and Seattle, Washington.

**National Ocean Service (NOS) - [National Coastal Zone Management Program](#)**

Through a unique federal-state partnership, NOAA's Office for Coastal Management works with the California Coastal Commission, the San Francisco Bay Conservation and Development Commission, and the California Coastal Conservancy to implement the National Coastal Zone Management Program in California. NOAA provides these three state agencies with financial and technical assistance to further the goals of the Coastal Zone Management Act to protect, restore, and responsibly develop our nation's coastal communities and ensure coastal waters and lands are used in a balanced way to support jobs, reduce use conflicts, and sustain natural resources.

**National Ocean Service (NOS) - [Coastal Management Fellowship](#)**

This program matches postgraduate students with state and territory coastal zone programs to work on two-year projects proposed by the state or territory. The California State Coastal Conservancy is hosting a fellow from 2020-2022, who is helping implement, track, and evaluate a visionary regional plan to restore southern California's wetlands, the Regional Strategy 2018, as well as support a community-based wetland restoration grant program in order to increase coastal wetland resilience that benefits all people in California.

**National Ocean Service (NOS) - [Digital Coast](#)**

The Digital Coast is a focused information resource developed to meet the unique needs of coastal communities. Developed and maintained by NOAA's Office for Coastal Management, content comes from hundreds of organizations, including federal, state, and local agencies, plus private sector and non-profit contributors. The Digital Coast website provides not only site-specific coastal data, but also related the tools, training, and information needed to make these data useful for coastal decision makers.

**National Ocean Service (NOS) - [National Coastal Resilience Fund](#)**

The National Coastal Resilience Fund is a partnership effort between NOAA and the National Fish and Wildlife Foundation (NFWF) to restore, increase, and strengthen natural infrastructure to protect coastal communities, while also enhancing habitat for fish and wildlife. In California, ten projects have been awarded, three in FY18, four in FY19, and three in FY20.

**National Ocean Service (NOS) - [Emergency Coastal Resilience Fund](#)**

The Emergency Coastal Resilience Fund is a partnership effort between NOAA and the National Fish and Wildlife Foundation (NFWF) to increase the resilience of coastal communities within areas affected by Hurricanes Florence and Michael, Typhoon Yutu, and the coastal California wildfires in 2018. California received funding for two projects, one to develop a fire prevention program for the Santa Monica Mountains region, and another to remove passage barriers and restore riparian areas in Santa Barbara County to mitigate future flood impacts from debris flow.

**National Ocean Service (NOS) - [Coastal and Estuarine Land Conservation Program](#)**

The Coastal and Estuarine Land Conservation Program brings conservation partners together to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. Subject to availability of funding, the program provides state and local governments with matching funds to purchase coastal and estuarine lands or obtain conservation easements for important lands threatened by development. Since 2002, the program has protected more than 110,000 acres of coastal land nationally, including over 16,000 acres protected as in-kind matching contributions. Fourteen projects have been successfully completed in California, and these lands are protected in perpetuity.

**National Ocean Service (NOS) - [West Coast Ocean Alliance](#)**

NOAA's Office for Coastal Management is the federal co-lead for the West Coast Ocean Alliance, which includes involvement and support from other NOAA offices (NMFS and ONMS). The partnership is a state, tribal, and federal forum



for fostering dialogue on ocean health. The goal is to work together to create shared visions and implementation opportunities. Members include the three west coast states and several west coast tribes and federal agencies, including the Department of Interior which co leads with NOAA. The partnership's focus includes data delivery and coordination, improving intergovernmental, especially tribal, coordination, and ocean uses such as offshore energy and aquaculture.

**National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - [Montrose Settlements Restoration Program](#)**

From the late 1940s to the early 1970s, the Montrose Chemical Corporation discharged millions of pounds of DDT and PCBs onto the Palos Verdes Shelf off the Southern California coast. These hazardous chemicals persist in the environment and continue to affect marine life and birds in Southern California. NOAA and other natural resource trustees formed the Montrose Settlements Restoration Program (MSRP) to oversee restoration of bald eagles, peregrine falcons, seabirds, fishing, and fish habitat. Restoration of these resources has been ongoing since the release of the MSRP Phase 1 Restoration Plan in 2005.

**National Ocean Service (NOS) - [National Water Level Observation Network](#)**

NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) operates 14 long-term, continuously operating tide stations in the state of California, which provide data and information on tidal datums, relative sea level trends, and are capable of producing real-time data for tsunami and storm surge warning. These stations are located at San Diego, La Jolla, Los Angeles, Santa Monica, Santa Barbara, Port San Luis, Monterey, San Francisco, Alameda, Point Reyes, Port Chicago, Arena Cove, North Spit, and Crescent City. Each station is associated with a set of tidal benchmarks installed in the ground that is used to reference the height of the water levels and helps connect the water level to land.

**National Ocean Service (NOS) - [U.S. Integrated Ocean Observing System \(Central and Northern California Ocean Observing System\)](#) and [\(Southern California Coastal Ocean Observing System\)](#)**

The U.S. Integrated Ocean Observing System, or IOOS®, is a federally and regionally coordinated observing system with 17 interagency and 11 regional partners. The System addresses regional and national needs for coastal, ocean, and Great Lakes data and information. This includes gathering and disseminating regional observations; data management; modeling and analysis; education and outreach; and research and development. The Central and Northern California Ocean Observing System (CeNCOOS) enhances coastal management and allows for more informed decision-making through ocean observations using various physical, biological and chemical sensing technologies to add to our knowledge of changing ocean conditions. The geographic extent of CeNCOOS includes from Point Conception north to the California-Oregon border and from the coastline out to 200 nautical miles (the seaward extent of the Exclusive Economic Zone). CeNCOOS includes bays and estuaries in this region. Within the state, CeNCOOS collaborates closely with its neighboring Regional Association, the Southern California Coastal Ocean Observing System (SCCOOS), and the state agencies supporting coastal management activities.

The Southern California Coastal Ocean Observing System (SCCOOS) has developed the capabilities to support short-term decision-making and long-term assessment by implementing and leveraging biological, chemical and physical observations and models, many of them in the near real-time. The principal goal of the SCCOOS is to provide observations and products to a diverse stakeholder community of managers and planners, operational decision makers, scientists and the general public. Information is readily available in a variety of formats to ensure that products are useful and easy to access while preserving the necessary detail to support the scientific and educational communities. SCCOOS works interactively with its neighboring IOOS Regional Association to the north, the Central and Northern California Ocean Observing System (CeNCOOS), and their activities are integral to California's economy, health and safety. Marine



transportation, aquaculture, commercial fishing, recreational boating and many other industries rely on the data provided to operate successfully.

**National Ocean Service (NOS) - [California Bay Watershed Education and Training Program](#)**

NOAA Bay Watershed Education and Training (B-WET) program, administered in this region by the Office of National Marine Sanctuaries, is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. The primary delivery of B-WET is through competitive funding that promotes Meaningful Watershed Educational Experiences (MWEEs). B-WET currently serves seven areas of the country: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawai'i, New England, and the Pacific Northwest. The California B-WET program recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. California B-WET responds to regional education and environmental priorities through local implementation of competitive grant funds.

**National Ocean Service (NOS) - [Office of National Marine Sanctuaries West Coast Regional Office](#)**

The Office of National Marine Sanctuaries, West Coast Regional Office oversees management of and fosters coordination among the five national marine sanctuaries of the west coast, which together protect 15,455 square miles of ocean and coastal waters from Washington to southern California. The regional office also closely collaborates with federal, state, local and tribal entities in shared management responsibilities. The West Coast Regional Office is located in Monterey, CA; each sanctuary office and visitor center is noted geographically below for individual congressional districts. NOAA Sanctuaries West Coast Regional Office also manages B-WET Pacific Northwest; see Oregon and Washington "NOAA in your State" for a description of that program. The regional office also maintains and operates two science vessels to support the three north-central California national marine sanctuaries; these vessels are homeported at Monterey Harbor.

**National Ocean Service (NOS) - [Ocean Guardian School Program](#)**

An Ocean Guardian School makes a commitment to the protection and conservation of its local watersheds, the world's ocean, and special ocean areas, like national marine sanctuaries. Funds are provided to schools at \$4,000 per year if the school makes this commitment by proposing and then implementing a school- or community-based conservation project. Once the school has completed its project, the school receives official recognition as a NOAA Ocean Guardian School. To date, the Ocean Guardian School Program has partnered with more than 147 schools and has reached more than 80,400 students.

**National Ocean Service (NOS) - Students for [Zero Waste Week](#)**

Students are inviting their local communities to "Go Green and Think Blue" by joining them in the annual *Students for Zero Waste Week campaign*. During this campaign led by the Office of National Marine Sanctuaries, students focus on reducing land-based waste in order to protect the health of local marine environments. These young leaders are raising awareness of how single-use plastic and other types of litter affect the health of local watersheds, national marine sanctuaries, and the ocean. In addition, some schools are looking at ways to reduce their energy use on campus with hopes of raising awareness of how the burning of fossil fuels also impacts the health of the ocean.

**National Ocean Service (NOS) – OR&R [Scientific Support Coordinator and Regional Resource Coordinator](#)**

NOAA's Office of Response and Restoration (OR&R) brings decades of experience, technical expertise and scientific analysis in response to oil and hazardous chemical spills. Eleven regionally based Scientific Support Coordinators (SSCs) harness the input of a multi-disciplinary team to address issues such as oil slick trajectory forecasting, environmental trade offs, best practices, resources at risk, and chemical hazard assessment to reduce risks to coastal habitats and

resources. OR&R also helps develop preparedness plans that identify spill response actions with the greatest environmental benefit and trains hundreds of members of the response community each year on the scientific and technical aspects of spills.

OR&R identifies and quantifies environmental injury caused by releases of oil and hazardous materials. Our network of Regional Resource Coordinators (RRC's) work on multi-disciplinary scientific, economic, and legal teams with the goal of securing the appropriate amount and type of restoration required to restore injured NOAA trust resources and compensate the public for their lost use. We collaborate with NMFS Restoration Center and NOAA General Council through the Damage Assessment, Remediation, and Restoration Program (DARRP) to ensure the process is efficient, legally defensible and restoration focused. In CA, the OR&R SSC is collocated with the USCG in Alameda and our RRC is based in Santa Rosa with support staff in Long Beach. To date DARRP has secured over \$181M for restoration of natural resources injured by eight oil spills and hazardous waste sites.

**National Ocean Service (NOS) - OR&R [Southwest Environmental Response Management Application](#)**

Assessing important spatial information and designing successful restoration projects rely upon interpreting and mapping geographic information, including the location, duration, and impacts from oil spills, other hazardous materials, or debris released into the environment. Southwest Environmental Response Management Application (ERMA®) is an online mapping tool that integrates both static and real-time data, such as Environmental Sensitivity Index maps, ship locations, weather, and ocean currents, in a centralized, easy-to-use format for environmental responders and decision makers.

**National Ocean Service (NOS) - [Marine Debris Projects and Partnerships](#)**

The NOAA Marine Debris Program (MDP) leads national and international efforts to research, prevent, and reduce the impacts of marine debris. The program supports marine debris removal, prevention, and research projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. The MDP California Regional Coordinator, based in Oakland, supports coordination efforts with regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences. In partnership with the California Ocean Protection Council, the MDP is working with stakeholders to implement the California Ocean Litter Prevention Strategy: Addressing Marine Debris from Source to Sea. The Strategy was developed through a collaborative process with stakeholders and serves as a guiding document with priority actions to address from 2018-2024.

The MDP is working to prevent marine debris in partnership with the San Francisco Chapter of the Surfrider Foundation to change cigarette butt-discarding behavior by increasing access to receptacles and raising awareness about the negative impacts of butt debris. In addition, One Cool Earth is delivering teacher training and year-round marine debris education at 17 schools in San Luis Obispo County. Recent marine debris removal projects in California include working with California State University Channel Islands on the assessment and removal of marine debris from remote and hard-to-access Channel Islands shorelines; supporting the Richardson's Bay Regional Agency-led removal of 62 deteriorated or unseaworthy vessels from Richardson Bay, located within the San Francisco Bay; and a continued partnership with the Tijuana National Estuarine Research Reserve to reduce debris sources in Mexico and enhance trash capture in the estuary before it reaches the Pacific Ocean. The MDP is also funding a University of California Riverside project to investigate the source and pathways of microplastics in the Southern California Bight.

**National Ocean Service (NOS) - [Analytical Response Team](#)**

NOAA's Analytical Response Team (ART) works with Federal, academic, and state partners to respond to HAB and associated mortality events. They can provide rapid and accurate identification of harmful algae and their associated toxins to the management agencies responsible for, e.g. opening and closing fisheries, targeting monitoring, and

responding to marine mammal mortality events. ART works nationally, processing samples and providing expertise upon request. This year ART has responded to events related to harmful algal blooms on the West Coast.

**National Ocean Service (NOS) - [Phytoplankton Monitoring Network](#)**

The Phytoplankton Monitoring Network (PMN) engages volunteers in monitoring marine phytoplankton and HABs. Data collected by PMN volunteers is used to better understand species composition and distribution in coastal and Great Lakes waters, and to identify areas for further research and monitoring. Through this program, we have alerted managers to previously undetected toxins in commercial shellfish beds, and the potential for human Amnesic Shellfish Poisoning and domoic acid toxicity in marine animals. This year PMN is active along the West Coast from CA to AK, in Lake Erie, in the Gulf of Maine, and the Gulf of Mexico.

**National Ocean Service (NOS) - [Navigation Manager](#)**

NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in California. They help identify the navigational challenges facing marine transportation in California and provide NOAA's resources and services that promote safe and efficient navigation. Navigation managers are on call to provide expertise and NOAA navigation response coordination in case of severe coastal weather events or other marine emergencies. The Office of Coast Survey has a navigation manager in Santa Barbara to support mariners and stakeholders on the West Coast.

**National Ocean Service (NOS) - [Navigation Response Team](#)**

The Office of Coast Survey (OCS) maintains the nation's nautical charts and publications for U.S. coasts and the Great Lakes. OCS navigation managers are strategically located in U.S. coastal areas to provide regional support to federal and state agencies in order to assist with navigational challenges. The Office of Coast Survey's Navigation Response Branch (NRB) conducts routine and emergency hydrographic surveys; and working with the regional Navigation Managers, navigation response teams (NRT) work around-the-clock after storms to speed the reopening of ports and waterways. During emergency response, the NRTs provide time-sensitive information to the U.S. Coast Guard or port officials, and transmit data to NOAA cartographers for updating the Coast Survey's suite of navigational charts. NRT-Seattle is homeported in Seattle, WA and is able to respond within 24-48 hours.

**National Weather Service (NWS) - [California Buoys](#)**

The National Weather Service (NWS), through its National Data Buoy Center (NDBC), develops, deploys, operates, and maintains the current national data buoy network of moored and drifting weather buoys and land stations that serve all of the Nation's coastal states and territories. Within this network, 110 of the buoys and 51 of the land stations are maintained directly by NDBC. Located at NASA's Stennis Space Center in Mississippi, supports weather and marine warning and forecast services in real time by providing deep ocean and coastal meteorological and oceanographic observations. These data provide valuable information used by NWS supercomputers to produce computer-generated model forecasts of the atmosphere and climate. NDBC manages the Volunteer Observing Ship program to acquire additional meteorological and oceanographic observations supporting NWS mission requirements. NDBC also supports operational and research programs of NOAA and other national and international organizations. NDBC also operates NOAA's network of Deep-ocean Assessment and Reporting of Tsunami (DART®) stations, for the early detection and real-time reporting of tsunamis in the open ocean. Data from the DART®s are used by the National Weather Service Tsunami Warning Centers in Alaska and Hawaii to provide tsunami forecasts, warnings, and information. NDBC also operates the Tropical Atmosphere Ocean Array of buoys in the tropical Pacific. The TAO/TRITON array consists of approximately 70 moorings in the Tropical Pacific Ocean, telemetering oceanographic and meteorological data to shore in real-time via the Argos satellite system. The array is a major component of the El Niño/Southern Oscillation (ENSO) Observing System, the Global Climate Observing System (GCOS) and the Global Ocean Observing System (GOOS). These data provide

valuable information used by NWS supercomputers to produce computer generated model forecasts of the atmosphere, and climate.

**NOAA Office of Education — [Environmental Literacy Program](#)**

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to advance NOAA's mission through formal (K-12) and informal education. In California, ELP supports the Sea Lion Bowl, Los Angeles Surf Bowl, and Garibaldi Bowl in California, three of 25 regional competitions of the National Ocean Sciences Bowl (NOSB). The NOSB is an academic competition that engages high school students in learning about ocean sciences and related STEM careers while helping them become knowledgeable citizens and environmental stewards. ELP supports the American Meteorological Society's DataStreme courses for K-12 educators through a grant and in-kind support. These courses use weather, climate, and the ocean as contexts for teaching science and improving understanding about the Earth system.

**Office of Oceanic and Atmospheric Research (OAR) - [Science on a Sphere](#)**- See [Page 2](#) for details.

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**[Statewide](#)**

**National Marine Fisheries Service (NMFS) - [West Coast Region](#)**

NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act. To achieve this mission and advance sound stewardship of these resources, we work closely with tribes, local, state and federal agencies, our stakeholders, and partners to find science-based solutions to complex ecological issues.

**National Marine Fisheries Service (NMFS) – [Aquaculture Coordinators](#)**

The aquaculture coordinators lead regional efforts to foster sustainable aquaculture across the region. The West Coast has a vibrant commercial marine aquaculture industry supported by a world class research and technology sector. These positions support permit streamlining, aquaculture outreach and education, and serve as liaisons with state and local agencies, tribes, non-government organizations, academia, and industry.

**National Marine Fisheries Service (NMFS) - [Office of Law Enforcement](#)**

NOAA's Office of Law Enforcement is the only conservation enforcement program (Federal or State) that is exclusively dedicated to Federal fisheries and marine resource enforcement. Its mission is to protect global marine resources by enforcing domestic laws and international treaties and obligations dedicated to protecting wildlife and their natural habitat. Our special agents and enforcement officers ensure compliance with these laws and take enforcement action if there are violations. Additionally, the Cooperative Enforcement Program allows NOAA the ability to leverage the resources and assistance of 27 coast states and U.S. territorial marine conservation law enforcement agencies in direct support of the Federal enforcement mission.

Effective fisheries law enforcement is critical to creating a level playing field for U.S. fishermen and enabling sustainable fisheries to support vibrant coastal communities. The Office of Law Enforcement's West Coast Division is headquartered

in Seattle, Wash., with California field offices in Alameda, Long Beach, San Diego, Monterey, Sacramento, Santa Rosa and Arcata.

**National Marine Fisheries Service (NMFS) - [Restoration Center](#)**

The NOAA Restoration Center is devoted to restoring the nation's coastal ecosystems and preserving diverse and abundant marine life. Our projects help recover threatened and endangered species, support sustainably managed species, and reverse the damage done by oil spills and toxic releases. In addition, the Restoration Center, along with NMFS Habitat Protection and the West Coast Regional Office, are working on implementing the Russian River Watershed Habitat Focus Area. Working with four other NOAA Line offices (National Weather Service, National Ocean Service, Office of Research and Program Planning and Integration) we are conserving habitat in the Russian River at a watershed scale.

**National Marine Fisheries Service (NMFS) - [Southwest Fisheries Science Center](#)**

The Southwest Fisheries Science Center (SWFSC) is the research arm of NOAA's National Marine Fisheries Service (NOAA Fisheries) in the Southwest Region. Center scientists conduct marine biological, economic and oceanographic research, observations on living marine resources and their environment throughout the Pacific Ocean and the Southern Ocean off Antarctica. This scientific information supports the sustainability of the region's fisheries and fishing communities and the recovery and conservation of protected species. Guided by the Magnuson-Stevens Fisheries Conservation Act, Endangered Species Act and Marine Mammal Protection Act, research is conducted in support of several regional and international fisheries councils, commissions, conventions and agreements. The Science Center is based in La Jolla with laboratories located in Santa Cruz and Monterey, a field office in Arcata and field stations in Granite Canyon and Piedras Blancas. The SWFSC engages in educational and public engagement partnerships, including with the Exploratorium (San Francisco), Seymour Science Center (UC Santa Cruz), Monterey Bay National Marine Sanctuary Exploration Center (Santa Cruz) and Ocean Discovery Institute (San Diego).

**National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - [Damage Assessment, Remediation, and Restoration Program](#)**

NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) assesses and restores habitat, fisheries, protected species and recreational uses that have been harmed by oil spills, chemical releases, and ship groundings. Working with federal, state, and tribal entities, and responsible parties, we have recovered funding from responsible parties for restoration of critical habitats, fisheries, protected species and recreational uses nationwide. These projects promote recovery of the ecosystem and provide economic benefits from tourism, recreation, green jobs, coastal resiliency, property values and quality of life. In California, the Program is currently working to restore natural resources in cases including the M/V *Cosco Busan*, Luckenbach, and Refugio oil spills, and the Castro Cove, San Diego Bay, and Montrose hazardous waste sites.

**National Ocean Service (NOS) – [Regional Geodetic Advisor](#)**

The Regional Geodetic Advisor is a National Ocean Service (NOS) employee that resides in a region and serves as a liaison between the National Geodetic Survey (NGS) and its public, academic and private sector constituents within their assigned region. NGS has a Regional Geodetic Advisor stationed in La Jolla, CA serving the Pacific Southwest region – California and Nevada. The Geodetic Advisor provides training, guidance and assistance to constituents managing geospatial activities that are tied to the National Spatial Reference System (NSRS), the framework and coordinate system for all positioning activities in the Nation. The Geodetic Advisor serves as a subject matter expert in geodesy and regional geodetic issues, collaborating internally across NOS and NOAA to ensure that all regional geospatial activities are properly referenced to the NSRS.



**National Weather Service - [NEXRAD \(WSR-88D\) Systems](#)**

NEXRAD is used to warn the people of the United States about dangerous weather and its location. This radar technology allows meteorologists to warn the public to take shelter with more notice than ever before. The NEXRAD network provides significant improvements in severe weather and flash flood warnings, air traffic safety, flow control for air traffic, resource protection at military bases, and management of water, agriculture, forest, and snow removal. NEXRAD radar has a range of up to 250 nautical miles, and can provide information about wind speed and direction, as well as the location, size, and shape of precipitation. There are 159 operational NEXRAD radar systems deployed throughout the United States and overseas, of which nine are in California.

**National Weather Service (NWS) - [Automated Surface Observing Systems Stations](#)**

The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations while supporting the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations 24/7/365 observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, thunderstorms, and fog. There are 69 ASOS stations in California.

**National Weather Service (NWS) - [Cooperative Observer Program Sites](#)**

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal (including the Department of Homeland Security), state and local entities, as well as private companies (such as the energy and insurance industries). In some cases, the data are used to make billions of dollars' worth of decisions. For example, the energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 458 COOP sites in California.

**National Weather Service (NWS) - [Incident Meteorologists](#)**

The NWS, as mandated by Congress, provides fire weather forecast products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands. Since 1928, this effort has included providing critical on-scene support to wildfire managers via specially-trained NWS forecasters called Incident Meteorologists (IMETs). When a fire reaches a large enough size, IMETs are rapidly deployed to the incident and set-up a mobile weather center to provide constant weather updates and forecast briefings to the fire incident commanders. IMETs are very important members of the firefighting team, as changes in the fires are largely due to changes in the weather.

**National Weather Service (NWS) - [NOAA Weather Radio All Hazards Transmitters](#)**

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of



hazards – including natural, environmental and public safety. Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 35 NWR transmitters in California.

**Office of Oceanic and Atmospheric Research (OAR) - [MOA California Department of Water Resources](#)**

NOAA is in the midst of a new 5-year MOA with the California Department of Water Resources that provides state-of-the-art observations, display systems, and decision support tools to address water resource and flood protection issues. The project utilizes an existing network of GPS receivers to retrieve water vapor measurements at 37 sites across the state. Because the amount of rainfall absorbed by the ground can be the deciding factor for flooding, soil measurement systems are being deployed at 43 sites across the state. Ten low-powered S-Band radars (designed by CIRES and the Physical Sciences Laboratory specifically for this project) deployed at key reservoirs around the state will help detect snow level. Four coastal atmospheric river observatories will measure the conditions associated with land-falling atmospheric rivers; a key component of winter storms that are responsible for flooding and can sometimes lead to dangerous debris flows.

**Office of Oceanic and Atmospheric Research (OAR) - [California Sea Grant College Program](#)**

The National Sea Grant College Program (Sea Grant) is a federal-university partnership administered by NOAA that integrates research, extension outreach, and education. Sea Grant forms a national network of 34 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. The California Sea Grant College Program, based at the University of California's Scripps Institution of Oceanography in La Jolla, annually funds 60 concurrent research projects, which are peer-reviewed and competitively selected to address a wide range of problems and opportunities. The program supports an additional 25 outreach and applied research projects through its Extension Specialists. Current projects focus on healthy marine ecosystems, sustainable use of coastal and marine resources, sustainable coastal community development, fisheries and fisheries habitat, seafood safety and quality, coastal water quality, aquatic nuisance species, wetland and salmonid habitat restoration, aquaculture, new technologies, marine reserves, and education, training and public information. Administrative offices are located in La Jolla and Los Angeles.

**Office of Oceanic and Atmospheric Research (OAR) - [University of Southern California Sea Grant Program](#)**

The National Sea Grant College Program (Sea Grant) is a federal-university partnership administered by NOAA that integrates research, extension outreach, and education. Sea Grant forms a national network of 34 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. The Southern California Sea Grant Program, based at the University of Southern California in Los Angeles, concentrates on "The Urban Ocean" -- issues arising out of the necessity of managing people and natural resources in an intensely urban and developed coastline. USC Sea Grant focuses its research, outreach and education programs on the most pressing issues along the urban coastline, including: water quality impacts from land-based inputs into the coastal ocean, harmful algal blooms, invasive species, marine protected areas, seafood safety, ports and harbors, and climate change planning and adaptation. In addition, K-12 education programs increase science literacy among urban students and encourage teachers to adopt science education curricula. Many California institutions receive research funding through the Sea Grant College Program, including the University of Southern California and other private institutions, and University of California and California State University campuses. Any academic institution may apply for funding for projects addressing issues pertaining to the "urban ocean."

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